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Modified low energy adaptive clustering hierarchy protocol for efficient energy consumption in wireless sensor networks (Article)

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Abstract

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In this paper, we propose a Modified Low-Energy Adaptive Clustering Hierarchy (MoLEACH) protocol to improve energy consumption in in Wireless Sensor Networks. The novelty of MoLEACH is that, unlike the original LEACH that uses the residual energy of the network, it considers the residual energy of each node for calculation of the threshold value for the next round in cluster head selection. We make comparative simulation analysis between the MoLEACH and LEACH in testing different parameters such as first node dead, half node dead, and the effect of the number of nodes to the network lifetime. The simulation results show that the number of nodes affects the network lifetime in which increments of number of nodes decrease the network lifetime. In small area, minimum number of nodes is better for network lifetime in both MoLEACH and LEACH protocols. Hence, MoLEACH shows improvement of energy efficiency over the LEACH.

Author keywords

Cluster-based Routing Energy efficiency Healthcare LEACH protocol Wireless sensor networks

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